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UNITED STATES DISTRICT COURT
 NORTHERN DISTRICT OF CALIFORNIA
 SAN FRANCISCO DIVISION

HUAWEI TECHNOLOGIES, CO., LTD., et al.,

Plaintiffs,

v.

SAMSUNG ELECTRONICS CO., LTD., et al.,

Defendants.

SAMSUNG ELECTRONICS CO., LTD. &
 SAMSUNG ELECTRONICS AMERICA, INC.

Counterclaim-Plaintiffs,

v.

HUAWEI TECHNOLOGIES, CO., LTD,
 HUAWEI DEVICE USA, INC., HUAWEI
 TECHNOLOGIES USA, INC. & HISILICON
 TECHNOLOGIES CO., LTD.

Counterclaim-Defendants.

CASE NO. 16-cv-02787-WHO

**SAMSUNG'S OPENING CLAIM
 CONSTRUCTION BRIEF**

Technology Tutorial

Date: August 7, 2017

Time: 9:00 AM

Claim Construction Hearing

Date: August 10, 2017

Time: 9:00 AM

Place: Courtroom 2, 17th Floor

Judge: Hon. William H. Orrick

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1 **I. INTRODUCTION**

2 Samsung respectfully submits this opening brief on the following disputed claim terms from
 3 Samsung’s patents: “a middle symbol in the slot” (’130 patent); “[calculating/calculates] a HARQ
 4 process IDentifier (ID) using the number of HARQ processes of the persistent resource allocation, the
 5 persistent resource allocation interval information, and time information” (’726 patent);
 6 “predetermined delay duration” (’825 patent); “a set of control channel candidates” (’195 patent); and
 7 “controlling an active time period during a [DRX] operation” (’588 patent).

8 The patents-at-issue are largely the result of Samsung’s research to improve the LTE standard.
 9 Samsung’s inventors participated in LTE standard-setting meetings and contributed their ideas during
 10 those meetings. It is therefore no coincidence that Samsung’s inventions are now part of, and
 11 essential to the LTE standard. As set forth in Samsung’s infringement contentions (Dkt. No. 134),
 12 Huawei infringes these patents when it practices the LTE standard.

13 The disputed claim terms are mostly common English words, like “middle,” “controlling,”
 14 “predetermined,” and “set.” Instead of focusing on the claim language and its ordinary meaning,
 15 Huawei seeks to add ambiguity and complexity to straightforward terms. For the first three terms
 16 (“middle symbol ...,” “calculating ...,” and “predetermined ...”), Huawei adds limitations from the
 17 specification by requiring certain exemplary embodiments and studiously ignoring others. For the
 18 next term (“a set ...”), Huawei ignores the invention altogether, arguing that the claims should be
 19 construed to cover the antithesis of the specification. For the final term (“controlling ...”), Huawei
 20 argues that the term is indefinite, even though (i) Huawei proposes an alternative construction and (ii)
 21 one skilled in the art would understand the scope of the invention with reasonable certainty.

22 When, as here, claim terms are used consistent with their ordinary meaning, it is difficult, if
 23 not impossible, to craft a definition that is better than the claim language itself. This is why Courts
 24 have routinely held that some claim terms should be left untouched; to construe them would only rob
 25 the inventors of the full scope of their invention.

26 **II. CLAIM CONSTRUCTION LAW**

27 Claim construction is a matter of law to be determined by the Court. *Markman v. Westview*
 28 *Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), *aff’d*, 517 U.S. 370 (1996). “It is well-

1 settled that, in interpreting an asserted claim, the court should look first to the intrinsic evidence of
2 record, *i.e.*, the patent itself, including the claims, the specification and, if in evidence, the prosecution
3 history. Such intrinsic evidence is the most significant source of the legally operative meaning of
4 disputed claim language.” *Liquid Dynamics Corp. v. Vaughan Co., Inc.*, 355 F.3d 1361, 1367 (Fed.
5 Cir. 2004) (quoting *Vitronics Corp. v. Conceptronic Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). In
6 addition to intrinsic evidence, a court may rely on extrinsic evidence, such as dictionaries and
7 treatises, to shed light on the claimed technology, although such evidence is “less significant than the
8 intrinsic record.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1317-18 (Fed. Cir. 2005) (*en banc*) (internal
9 citations omitted).

10 When construing claims, the Court must begin by “look[ing] to the words of the claims
11 themselves . . . to define the scope of the patented invention.” *Vitronics*, 90 F.3d at 1582. “The task
12 of comprehending those words is not always a difficult one. In some cases, the ordinary meaning of
13 claim language as understood by a person of skill in the art may be readily apparent even to lay
14 judges, and claim construction in such cases involves little more than the application of the widely-
15 accepted meaning of commonly understood words. *Acumed LLC v. Stryker Corp.*, 483 F.3d 800, 805
16 (Fed. Cir. 2007) (quotations omitted).

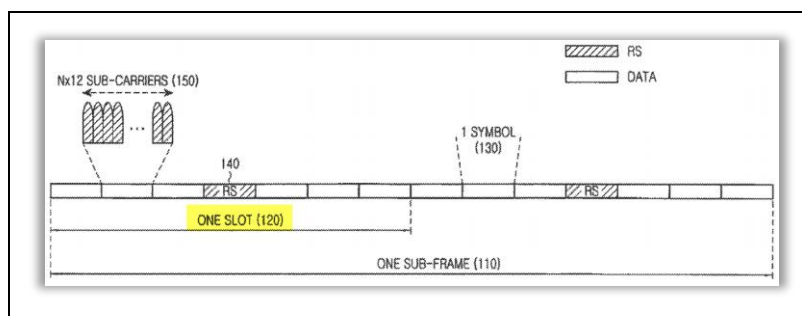
17 While claims are read in view of the specification, the specification should not be used to limit
18 the claim absent lexicography or disavowal. *Hill-Rom Services, Inc. v. Stryker Corp.*, 755 F.3d 1367,
19 1371-72 (Fed. Cir. 2014). The standards for these two exceptions are exacting. *Id.* “To act as its own
20 lexicographer, a patentee must clearly set forth a definition of the disputed claim term other than its
21 plain and ordinary meaning” and must “clearly express an intent to redefine the term.” *Id.* (quoting
22 *Thorner v. Sony Computer Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). Disavowal
23 requires that the intrinsic record makes clear that the invention does not include a particular feature, or
24 is clearly limited to a particular form of the invention. *Id.*

25 Not every claim limitation requires construction. *U.S. Surgical Corp. v. Ethicon, Inc.*, 103
26 F.3d 1554, 1568 (Fed. Cir. 1997). Though a limitation may require construction to resolve a genuine,
27 material dispute, courts are not required to construe *every* limitation. *O2 Micro Int’l Ltd. v. Beyond*
28 *Innovation Technology Co., Ltd.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008).

III. U.S. PATENT NO. 8,761,130

A. Overview of the '130 Patent

In LTE systems, mobile phones (“user equipment” or “UE”) communicate with “base stations,” which are called the “Node B.” Ex. 1, '130 patent at 1:20-36. The transmission from the Node B to the UE is called the “downlink,” and the transmission from the UE to the Node B is the “uplink.” *Id.* at 1:28-42. On both the downlink and the uplink, information is sent using symbols. *Id.* at 52-65. These symbols are arranged into frames, subframes, and slots, *id.*, and each slot contains 6 or 7 symbols.



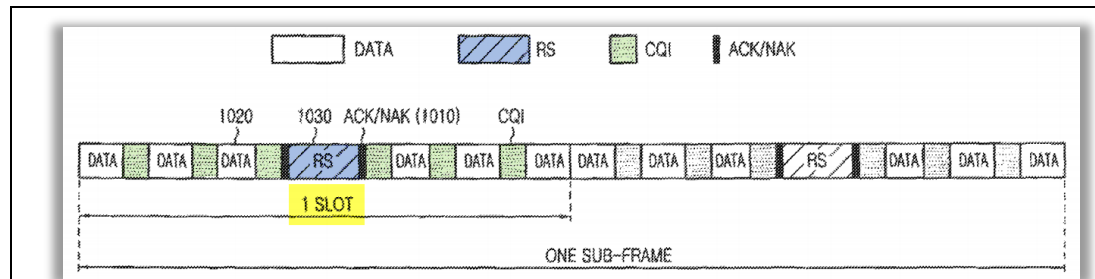
Id. at Fig. 1. As shown above, LTE systems use a “reference signal” (abbreviated “RS”) to estimate how much the signal was distorted during transmission from the UE to the Node B, and ultimately restore signal quality. *Id.* The remaining symbols contain control bits and/or data bits. *Id.* at 20-51. The control bits are used to ensure the system is working properly. *Id.* The data bits are the actual message(s) being transmitted.

For purposes of the '130 patent, there are two relevant types of control bits. “Acknowledgment information” is used to acknowledge (“ACK”) that the message was successfully received or indicate that it was not successfully received (“NACK”). *Id.* at 39-51. The other control bits are “channel quality indicator” (CQI) bits. *Id.* These bits determine whether there is a good connection between the Node B and the UE. *Id.*

While working on the LTE standard, the '130 inventors made two key observations. *First*, it is critical for the UE to receive the control bits. *Id.* at 2:62-3:3. If the data bits are corrupted during transmission, the control bits tell the system to retransmit them. *Id.* But if the control bits are lost, the transmission can break down. *Id.* *Second*, the RS is a better indicator of the distortion for adjacent symbols than more distant symbols. *Id.* at 4:40-55. Using these observations, the inventors conceived

that the “acknowledgement information” should be in symbols directly adjacent to the symbol carrying the RS. *Id.* at 5:57-59.

In one exemplary embodiment, the slot contains seven symbols, with the RS in the fourth symbol. *Id.* at Fig. 10. The directly adjacent symbols contain the acknowledgement information, and the CQI is interspersed with the data in the remaining symbols. *Id.* The RS is thus equidistant from the beginning and the end of the slot.



Id. at Fig. 10. While not shown in Figure 10, if the slot contains an even number of symbols, the RS cannot be surrounded by an equal number of symbols. For instance, the use of six-symbol slots was known. *See e.g.*, Ex. 6, Zyren, J. “Overview of the 3GPP Long Term Evolution Physical Layer,” (“Zyren”) at 8-9 (“Slots consist of either 6 or 7 OFDM symbols, depending on whether the normal or extended cyclic prefix is employed.”). In such a slot, the RS is still in one of the middle symbols but it is necessarily closer to the beginning or end of the slot.

B. A Middle Symbol in the Slot

Samsung's Construction	Huawei's Construction
No construction necessary.	“symbol(s) with the same number of symbols on each side”

The term “a middle symbol in the slot” appears in all of the asserted claims of the ’130 patent. Exemplary claim 13 is reproduced below:

9. A method for transmitting a signal in a slot of a subframe in a wireless communication system, the signal including data information and acknowledgement information, the method comprising:
 - mapping a reference signal to **a middle symbol in the slot**;
 - mapping the data information to remaining symbols in the slot that are not used to map the reference signal;
 - mapping the acknowledgement information to first symbols among the remaining symbols in the slot, the first symbols not being used to map reference signals and the first symbols being directly adjacent to the middle symbol; and

1 transmitting the signal including the mapped data information, the mapped
2 acknowledgement information, and the mapped reference signal,
3 wherein some of the data information is mapped to the first symbols which are
4 directly adjacent to the middle symbol, and
5 wherein CQI information is multiplexed with the data information.

6 '130 patent at claim 13 (emphasis added).

7 Claim construction begins with the claim language itself. The terms “middle,” “symbol,” and
8 “slot” are not coined terms. They have an ordinary meaning readily understood by those skilled in the
9 art, and lay persons alike. Huawei’s construction does not seek to clarify the meaning of “symbol” or
10 “slot.” Rather it seeks to redefine “middle” to mean less than its ordinary meaning. Huawei’s
11 proposed construction also omits the term “slot,” begging the question of where the counting of
12 symbols should start and stop. While it is clear from the claim language and specification that the
13 term references a middle symbol in the *slot*, Huawei’s construction introduces unnecessary confusion.

14 Using the example of seats on an airplane or at a movie theater, whether there is an even
15 number of seats or odd number of seats, if there are more than 3 seats, it necessarily follows that there
16 must be a middle seat. It does not necessarily follow that a middle seat only exists if there are an odd
17 number of seats. The middle seat could be closer to the left edge, or closer to the right edge, as long
18 as they are about the middle. *See e.g.*, Ex. 7 (definition of “middle” (“being at neither extreme”)). In
19 a row of six seats, it would be mathematically impossible for a person to sit in seat “with the same
20 number of [seats] on each side.” But the third or fourth seat, out of six seats, would be considered a
21 middle seat by any traveler or theater patron.

22 And so it is with the claims of the '130 patent. The claims refer to “*a* middle symbol.” It does
23 not follow that the middle slot only exists with an odd number of slots. A middle slot can and does
24 exist if there are six slots. Huawei’s attempts to impose a narrower definition than intended is
25 contrary to the plain and ordinary meaning of what it means to be a middle slot. And the fact that the
26 drafters could have used narrower language, but chose not to, is compelling evidence that Huawei's
27 construction is not consistent with the plain and ordinary meaning.

28 Huawei’s construction thus excludes a known slot structure. While the '130 patent describes
its inventions in reference to an exemplary seven-symbol slot structure, it was well known that the

1 slots may contain six or seven symbols, depending on the length of the cyclic-prefix used. *See e.g.*,
2 Zyren at 8-9 (“Slots consist of either 6 or 7 ODFM symbols, depending on whether the normal or
3 extended cyclic prefix is employed.”) As it is mathematically impossible to have a “symbol(s) with
4 the same number of symbols on each side” in a system with an even number of symbols per slot,
5 Huawei’s construction inappropriately precludes application of the invention to slots with an even
6 number of symbols, even though there are clearly symbols that can be characterized as being a middle
7 symbol of a slot.

8 Limitations from the specification should not be read into the claims absent clear disavowal.
9 *Liebel-Flarsheim Co. v. Medrad, Inc.*, 358 F.3d 898, 913 (Fed. Cir. 2004) (“[I]t is improper to read
10 limitations from a preferred embodiment described in the specification—even if it is the only
11 embodiment—into the claims absent a clear indication in the intrinsic record that the patentee
12 intended the claims to be so limited.”); *see also id.* at 906. Though an exemplary embodiment is
13 disclosed where the RS is surrounded in the slot by an equal number of symbols on each side, neither
14 the language of the claims nor the specification demands such precision.

15 Huawei relies entirely on two passages from the specification. Those passages, which
16 describe Figure 1, state: “the middle symbol in each slot carries the transmission of reference signals
17 (RS)” and that “[a] first observation for the sub-frame structure illustrated in FIG. 1 is that the
18 reference signal (RS) exists only in the middle symbol of each slot.” *Id.* at 1:52-65; 4:40-42. Huawei
19 ignores, however, that the language immediately preceding Huawei’s citation identifies Figure 1 as
20 exemplary and non-limiting. *Id.* at 1:53-55; *see also id.* at 3:54-55 (“FIG. 1 is a block diagram
21 illustrating an exemplary subframe structure for the SC-FDMA communication system.”). Moreover,
22 while the figures use the same exemplary frame structure, the specification makes clear that the
23 invention is not limited to a single embodiment. *Id.* at 4:28-33; *see also id.* at 4:20-24; 6:51-56. Such
24 use of a preferred embodiment does not and cannot rise to the level of disclaimer needed to limit the
25 claims to a particular embodiment. *Hill-Rom*, 755 F.3d at 1371-73.

26 Finally, the doctrine of claim differentiation strongly counsels against Huawei’s construction.
27 Dependent claim 16 recites “[t]he method as in claim 13, wherein the slot consists of 7 symbols, the
28 reference signal is mapped to a 4th symbol among the 7 symbols, and the acknowledgement

information is mapped only to 3rd and 5th symbols among the 7 symbols.” ’130 patent at 8:53-56. Federal Circuit case law is clear on this point; reading a limitation from a dependent claim into an independent claim is strongly disfavored. *See InterDigital Commc’ns, LLC v. Int’l Trade Comm’n*, 690 F.3d 1318, 1324 (Fed. Cir. 2012) (“The doctrine of claim differentiation is at its strongest in this type of case, “where the limitation that is sought to be ‘read into’ an independent claim already appears in a dependent claim.”) (quoting *Liebel-Flarsheim*, 358 F.3d at 910). As Huawei is apparently seeking a construction that would limit the RS to the fourth of seven symbols in a slot, and that limitation already appears in dependent claim 16, this Court should reject Huawei’s unwarranted limitation.

IV. U.S. PATENT NO. 8,619,726

A. Overview of the ’726 Patent

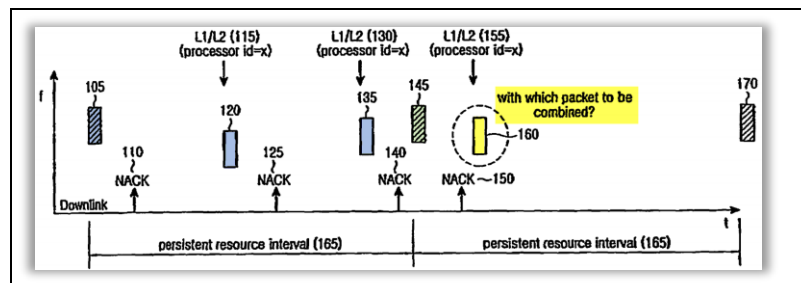
As explained in the ’726 patent, one of the important features of LTE is that it supports Voice over Internet Protocol (VoIP) where the person’s voice is converted into small data packets that are transmitted over the network. Ex. 2, ’726 patent at 1:38-42. For a typical phone call, there will be hundreds of millions of packets. In order to accommodate the large number of packets, the Node B allocates time and frequency blocks (*i.e.*, resources) for the UE to receive the packets. *Id.* at 1:46-51. Because the resources repeat periodically, they are called a “persistent resource allocation,” and the intervals are called a “persistent resource allocation interval.”

Unfortunately, LTE packets are corrupted as they travel over the air. To account for inevitable errors, the UE uses what is called a Hybrid Automatic Repeat reQuest (HARQ) process. *Id.* at 1:62-65. When the UE receives a new packet, the UE checks the packet for errors and tries to fix them. *Id.* at 2:4-15. If the UE cannot fix the errors, the UE stores a copy of the packet and transmits a negative acknowledgement (NACK) back to the Node B. *Id.* This NACK tells the Node B to retransmit the packet or a portion thereof.¹ When the retransmitted packet arrives, the UE combines the retransmitted packet with the stored packet and checks the packet for errors. *Id.* at 2:4-15. If the

¹ After transmitting the NACK, the UE monitors a control channel “to check if there is any HARQ packet scheduled ... in order to receive the HARQ packet transmitted.” *Id.* at 6:22-27; *see also id.* at 1:66-2:14.

combined packet is not error free, the UE stores an updated copy of the packet and sends another NACK requesting another HARQ packet. *Id.* This HARQ process continues until all of the errors are fixed or a retransmission limit is reached. *Id.*

Meanwhile, newer, different packets are arriving at the UE. *Id.* at 2:40-47. Because the new packets may also contain errors, the UE may have to handle several HARQ processes at the same time. *Id.* at 2:48-53. A problem arises when multiple HARQ processes have to use the same interval. *Id.* at 2:54-60. In order for the UE to process all of the incoming packets and ultimately reassemble the phone conversation, the UE has to determine the corresponding HARQ process for each packet. Figure 1, below, illustrates this problem, which the '726 inventors solved.



The rectangles depict packets arriving at a UE from a Node B (*i.e.*, downlink) in a persistent resource allocation. *Id.* at 1:55-56. This persistent resource allocation has recurring intervals (shown as reference numeral 165). *Id.* at 1:56-58. The x axis shows the amount of elapsed time. Starting on the left hand side of Figure 1, the UE receives a packet 105. *Id.* at 1:58-62. Because the packet contains errors that the UE could not fix, the UE transmits a NACK 110. *Id.* at 1:62-65. The HARQ process continues with the NACKs (125 and 140) and retransmitted packets (120, 135, and 160). *Id.* at 1:66-2:4. The problem occurs in the next interval when a new, different packet 145 is received. *Id.* at 2:45-47. When the UE transmits NACK 150 for packet 145, there are now two HARQ processes occurring in the same interval, and the UE has to match each incoming packet to the correct HARQ process. *Id.* at 2:48-60.

To solve this problem, the '726 inventors invented a way to calculate a HARQ process identifier for each packet as a function of three things: (1) the number of HARQ processes; (2) the length of the interval; and (3) the time that the interval began. *Id.* at 3:13-24; 4:58-5:2. Noting that this calculation can be performed a number of different ways, and that the described embodiments are

not intended to be limiting, the specification discloses an exemplary equation for calculating the HARQ process index:

$$\begin{aligned} &\text{persistent resource-dedicated HARQ process's} \\ &\text{index} = \text{MOD}[s, n], \\ &s = \text{ceiling}[t/i, 1] \end{aligned} \quad (3)$$

Id. at 9:4-18. In Equation 3, n denotes the number of HARQ processes, i denotes the length of the interval, and t denotes the time that the interval began. *Id.* This HARQ process index is then used to determine the HARQ process identifier. *Id.* at 9:4-9.

B. [Calculating/Calculates] a HARQ Process Identifier (ID) . . .

Samsung's Construction	Huawei's Construction
No construction necessary.	"Calculating a HARQ process ID using Equation 3: persistent resource-dedicated HARQ process's index=MOD[s, n], $s=\text{ceiling}[t/i, 1]$ "

The "calculating" term appears in independent claims 1 and 11 of the '726 patent. Exemplary claim 1 is reproduced below with the proposed term to be construed in bold:

1. A method for operating Hybrid Automatic Repeat reQuest (HARQ) in a mobile communication system, the method comprising:
 receiving a number of HARQ processes of a persistent resource allocation and persistent resource allocation interval information;
 receiving data according to the persistent resource allocation interval information;
calculating a HARQ process Identifier (ID) using the number of HARQ processes of the persistent resource allocation, the persistent resource allocation interval information, and time information; and
 associating a HARQ process with the calculated HARQ process ID.

'726 patent at claim 1 (emphasis added).

The meaning of this term is clear from the language of the claim itself and the related disclosure in the specification. The claim specifies that the HARQ process ID is calculated using *three* things: (1) the number of HARQ processes; (2) interval information; and (3) time information. The claim is not limited to a specific equation, as long as these three things are used in the calculation. Huawei is attempting to impose additional limitations that were not intended to be in the claim. If the

1 drafters had intended to limit claim 1 to a specific equation, they could have easily done so, as they
2 did in several of the dependent claims.

3 While there is no dispute that Equation 3 represents one embodiment of the invention,
4 Huawei's error lies again in attempting to read in a limitation from the specification. *See, e.g., Liebel-*
5 *Flarsheim*, 358 F.3d at 913. Courts should "interpret claims 'in view of the specification' without
6 unnecessarily importing limitations from the specification into the claims." *E-Pass Techs., Inc. v.*
7 *3Com Corp.*, 343 F.3d 1364, 1369 (Fed. Cir. 2003) (*quoting Tex. Digital Sys. v. Telegenix, Inc.*, 308
8 F.3d 1193, 1202 (Fed.Cir.2002)). Huawei's construction—selecting a single, exemplary equation
9 from the specification and then importing it into the claims—flouts this well-established canon of
10 claim construction.

11 There is simply *no* limiting language or corresponding disclaimer to support such a limitation.
12 *See Hill-Rom Services*, 755 F.3d at 1371-73. Huawei relies entirely on the paragraph where Equation
13 3 appears, and ignores the rest of the specification. But even the language that Huawei relies on
14 makes clear that Equation 3 is merely one possible way to calculate the HARQ process identifier. *Id.*
15 at 9:4-9 ("**For example**....") (emphasis added). Moreover, the paragraph immediately preceding
16 Huawei's citation provides a more general equation for calculating the HARQ process identifier. *Id.*
17 at 8:60-65 ("a persistent resource-dedicated HARQ process identifier can be expressed as shown in
18 Equation (2)," which reads: "persistent resource-dedicated HARQ process identifier = $F1(i,n,t)$.").
19 Equation 2 makes it clear that Equation 3 was not intended to be the sole way to calculate the
20 identifier. Rather the '726 inventors contemplated a function dependent on i (persistent resource
21 allocation interval), n (number of persistent resource-dedicated HARQ processes, and t (time
22 information of the timing at which persistent resources are allocated). *Id.* If Equation 3, using those
23 same three variables, was the *only* equation, then there would have been no reason to include
24 Equation 2.

25 In any event, the doctrine of claim differentiation operates as a strong presumption against
26 Huawei's construction. Dependent claim 4 reads: "The method of claim 1, wherein the HARQ
27 process ID is calculated using: HARQ process ID= s modulo n , where s is an integer derived from t/i ,
28 wherein t represents the time information, i represents the persistent resource allocation interval

1 information, and n represents the number of HARQ processes of the persistent resource allocation.”
 2 *Id.* at 18:22-31. Both claim 4 and Equation 3 calculate the HARQ process ID through the expression
 3 “ s modulo n ,” meaning the remainder of s divided by n . Because claim 1 does not include similar
 4 language regarding a particular equation, it should be construed more broadly than claim 4. This
 5 alone shows the error in Huawei’s construction. *See Phillips*, 415 F.3d at 1315 (“[T]he presence of a
 6 dependent claim that adds a particular limitation gives rise to a presumption that the limitation in
 7 question is not present in the independent claim.”).

8 Moreover, Equation 3 specifies that $s = \text{ceiling}[t/i, 1]$, while claim 4 simply says that “ s is an
 9 integer derived from t/i .” *Id.* at 9:4-18. To the extent Huawei is seeking to limit the calculation of s
 10 in claim 1 to $s = \text{ceiling}[t/i, 1]$, as opposed to $s = \text{floor}[t/i, 1]$, then Huawei is not only reading a limitation
 11 into independent claim 1, but dependent claim 4 would be broader than claim 1. *Intamin Ltd. v.*
 12 *Magnetar Techs., Corp.*, 483 F.3d 1328, 1335 (Fed. Cir. 2007) (“An independent claim impliedly
 13 embraces more subject matter than its narrower dependent claim.”). Under either scenario, Huawei’s
 14 construction should be rejected.

15 **V. U.S. PATENT NO. 9,288,825**

16 **A. Overview of the ’825 Patent**

17 In an LTE system, data is transmitted and received on shared channels (SCHs). Ex. 3, ’825
 18 Patent at 1:53-56, 2:14-15. These SCHs are used by multiple UEs to communicate with the same
 19 Node B. For a Node B to transmit a data packet via a SCH to a particular UE, the Node B must
 20 identify that UE as the intended recipient of the packet. This is typically done by the Node B
 21 assigning a “short Identifier” to each UE connected to that Node B.² *See id.* at 2:22-32; 2:44-49.

22 Using conventional methods, a message for allocating the short ID could not be transmitted on
 23 the SCH and required the use of “a new type of channel rather than the SCH,” thereby taking up
 24 additional bandwidth. *Id.* at 2:49-51. Specifically, whenever a UE powered on or moved to a new
 25 cell, it first acquired system information from the Node B. *Id.* at 2:56-65. The UE used this system
 26 information to send an initial uplink message (IUM) to the Node B over a first channel (a Random
 27
 28

1 Access Channel, or RACH). The IUM included a unique long ID for the UE. *Id.* at 2:66-3:3. The
 2 Node B would respond to the UE with an initial downlink message (IDM) over a second channel (the
 3 Forward Access Channel, or FACH). This IDM included both a short ID assigned to that UE, as well
 4 as other information the UE needed to use the shared channel. *Id.* at 3:4-17. After the UE received
 5 the IDM, it could communicate with the Node B using the short ID. *Id.* at 3:17-18

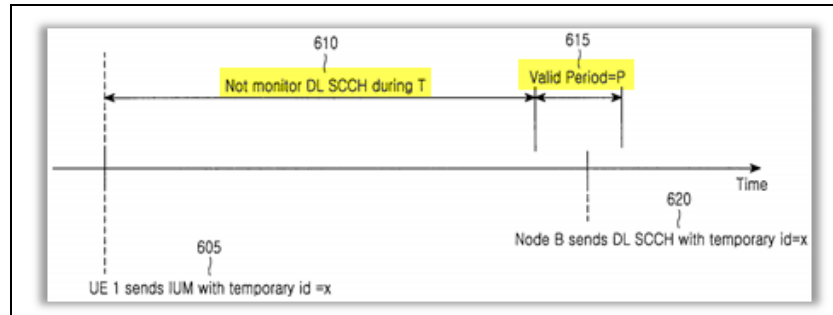
6 The '825 inventors streamlined this process by developing a clever way to use a SCH to obtain
 7 the short ID, and eliminate the need for the FACH entirely. Specifically, the '825 inventors
 8 developed systems and methods that use a pool of temporary IDs from which UEs can select when
 9 initiating communications with the Node B on an SCH. *Id.* at 5:22-30. Thus, as an exemplary
 10 embodiment, when the Node B sends the system information, it also indicates which pool of
 11 temporary IDs can be selected by the various UEs within the cell. *See id.* at 5:22-34; 11:43-44. Then,
 12 if the UE wants to send data to the Node B, it randomly selects one of the temporary IDs from the
 13 pool of temporary IDs, and uses the selected temporary ID to send an IUM over the RACH to the
 14 Node B. *Id.* at 5:38-45. The UE then monitors a downlink shared channel (DL SCCH) to determine
 15 whether a message from the Node B with that temporary ID has been received. Meanwhile, the Node
 16 B, in response to receiving the IUM, allocates a dedicated short ID to the UE, and prepares and sends
 17 an IDM over the DL SCCH that includes the selected temporary ID as well as the dedicated short ID
 18 allocated to that UE. *Id.* at 5:45-6:5. Thus, by using a predefined group of temporary IDs, the UE and
 19 Node B can use the SCH to assign the short ID and set up communications without the need for a
 20 separate FACH.

21 Unfortunately, a problem called a "collision" may arise when two UEs in the same cell select
 22 the same temporary ID. *Id.* at 6:8-11. If these UEs send IUMs at about the same time, then both of
 23 them will be waiting for a message from the Node B that includes the same temporary ID. When this
 24 happens, the second UE may think the short ID in the IDM has been allocated to it, when really it was
 25 allocated to the first UE. *Id.* at 6:13-46.

26 To address this potential problem, the '825 inventors developed a monitoring technique where

27
 28 ² While each UE has its own unique ID, this ID is long and thus would be computationally expensive
 (footnote continued)

the UEs wait for a “predetermined delay duration” before monitoring the DL SCCH. Only after the delay is over can the UE check the DL SCCH, during a “valid period.” *Id.* at 6:47-64.



Id. at Fig. 6. Introducing this delay duration increases the likelihood that, if a first UE selects a temporary ID, and then a second UE selects the same temporary ID a short time after, the second UE will not start monitoring the downlink SCH until after the first UE has received its IDM (and thus, the second UE is less likely to intercept the first UE’s IDM). *Id.* at 6:34-46, 50-60.

B. “Predetermined Delay Duration”

Samsung’s Construction	Huawei’s Construction
No construction necessary.	“Delay duration provided by base station”

The term “predetermined delay duration” appears in claims 1 and 4 of the ’825 patent; claim 1 is reproduced below:

1. A method for performing random access in a user equipment (UE) of a mobile communication system, the method comprising:
receiving system information indicating a group of identification (ID)s;
selecting an first ID from among the group of the IDs;
transmitting a first uplink signal corresponding to the selected first ID for random access to a Node B;
after the transmitting of the first uplink signal, waiting for a **predetermined delay duration** without checking a downlink channel;
after the waiting for the **predetermined delay duration**, checking the downlink channel during a valid period;
determining whether a downlink signal responding to the first uplink signal is received in the valid period, the downlink signal comprising a second ID and an UE-ID; and
transmitting a second uplink signal using the UE-ID, if the downlink signal is received during the valid period and the second ID is equal to the first ID,

to use, as the ID needs to be included with every packet transmitted on the SCH.

wherein the valid period starts when the **predetermined delay duration** starting from transmission of the first uplink signal has terminated.

'825 patent at claim 1 (emphasis added).

Starting with the claim language, “predetermined” is not a coined term, but has an ordinary and commonly understood meaning: “to decide or arrange something at an earlier time”; “determine beforehand.” *See, e.g.*, Exs. 8-10. Thus, as is commonly understood, “predetermined” is a temporal concept, *i.e.*, it defines *when* something happens. Huawei’s construction seeks to redefine “predetermined” to further require a spatial limitation, *i.e.*, that the delay duration must come from a particular location—“the base station.” But the plain language of the claim nowhere specifies that the UE must obtain a delay duration from some other source; further, to the extent the claim references the Node B at all, it is only in the context of the destination of the “first uplink signal” sent by the UE.

Consistent with the language of the claim, when describing the solution to the problem of collisions the specification only refers generally to the delay duration being “predefined”:

To address the problem, a method for increasing a size of a temporary ID pool or decreasing a time in which an operation error occurs can be considered. However, the method for increasing the size of the temporary ID pool is not preferred ... For this reason, the UE monitors the SCCH during a predefined valid period P after waiting for a predefined delay duration T without starting to monitor the SCCH immediately after a signal for requesting use of the SCH including a temporary ID is transmitted.

'825 patent at 6:34-39; *see also* Abstract 5-7, 3:52-54, 66-67 (referring to the “delay duration” without any restriction on spatial origin.) The specification neither imposes a limitation on where the delay duration needs to come from, nor seeks to define “predetermined” in a manner inconsistent with its plain meaning. Simply put, “[t]here is no such disclaimer or lexicography here. . . . The patents-in-suit do not describe the invention as limited to a” use of a delay duration received from the base station. *Hill-Rom* 755 F.3d at 1372.

Huawei apparently bases its construction on several “exemplary embodiments” in the specification, which note that, in those particular embodiments, a “delay duration T” is included in the system information. *See, e.g.*, '825 patent at 6:47-49 (“FIG. 6 illustrates an operation for preventing the collision of temporary IDs *in accordance with an exemplary embodiment of the present invention.*”); 4:34-37 (“FIG. 9 is a flowchart illustrating an operation for acquiring a short ID from the SCCH *in accordance with an exemplary embodiment* of the present invention.”) (emphasis

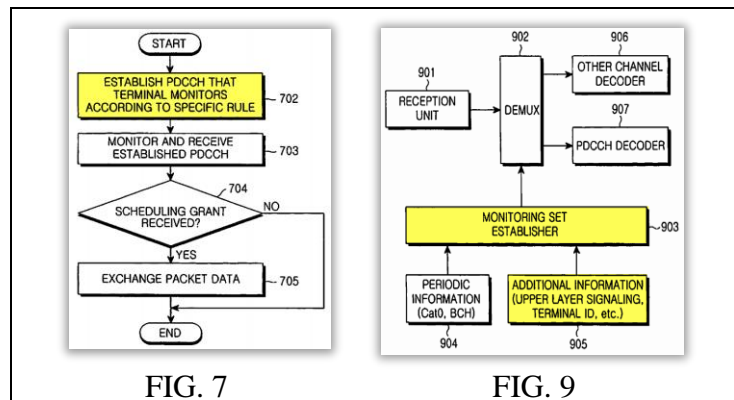
added). Huawei's attempt to read in such limitations from exemplary embodiments in the specification is improper. *See Liebel-Flarsheim*, 358 F.3d at 913.

VI. U.S. PATENT NO. 8,315,195

A. Overview of the '195 Patent

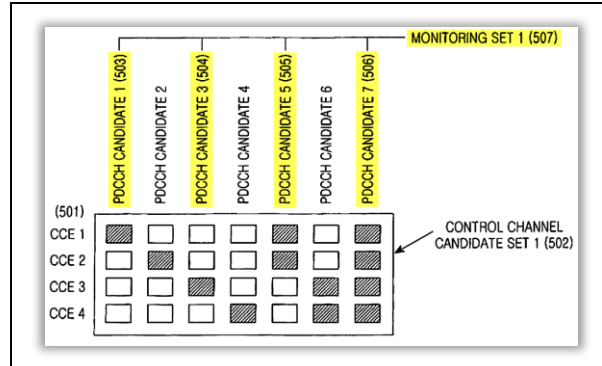
In an LTE system, control information is delivered to the UE via a Physical Downlink Control Channel (PDDCH). Ex. 4, '195 patent at Fig. 4. These control channels are formed using Control Channel Elements (CCEs). In order to ensure that the control information is delivered efficiently, the control channels are formed using a variable number of CCEs. If a UE is receiving a strong signal from the Node B with relatively little interference, the Node B can use a higher data rate and only one CCE for each possible control channel. If it is receiving a weak signal, the Node B has to use a lower data rate and 2, 4, or even 8 CCEs for each possible control channel.

Like the FM radio in a car, there are lots of possible channels, and some channels are better than others. It would be inefficient and wasteful to check each and every channel. It is usually better to set a few favorites and just scan those channels. Along these lines, the '195 inventors developed a clever scheme for monitoring some, but not all, of the control channels. As shown in Figure 7, the UE uses a specific rule to reduce the number of control channels that it has to monitor. *Id.* at 7:35-55. And as described in reference to Figure 9, that rule uses the Terminal ID as an input. *Id.* at 8:27-46. The Node B follows the same rule in determining what channels to use for each UE. *Id.* at 7:55-8:5.



Because the same rule is used in connection with both the transmission and reception, the Node B can transmit control information to a UE on fewer than all available control channels transmittable by that Node B, and the UE only need monitor one or more control channels within that restricted set. *Id.*

Fig. 5A shows the result of this determination (*i.e.*, the “monitoring set,” 503, 504, 505, and 506). As shown below, the “monitoring set” is less than the full range of control channels that the Node B could transmit to the UE. *Id.* at 6:6-25.



B. “A Set of Control Channel Candidates”

Samsung’s Construction	Huawei’s Construction
No construction necessary.	“all available control channels transmittable by a base station”

The term “a set of control channel candidates” appears in all of the asserted claims of the ’195 patent. Exemplary claim 9 is reproduced below:

9. A method for receiving control information in a terminal for a wireless communication system, the method comprising:
 - receiving, from a base station, information associated with a number of Orthogonal Frequency Division Multiplexing (OFDM) symbols carrying control channels;
 - determining **a set of control channel candidates** based on an Identifier (ID) of the terminal, wherein each control channel candidate included in the set of control channel candidates consists of one of one, two, four, and eight control channel elements (CCEs) existing in the OFDM symbols; and
 - monitoring at least one control channel candidate belonging to the set of control channel candidates to receive the control information.

’195 patent at claim 9 (emphasis added).

No construction of the term “set of control channel candidates” is necessary as the meaning is clear from the language of the claim itself. The “set of control channel candidates” is determined **based on an Identifier (ID)**. At least one of those control channel candidates is then monitored to receive control information. As explained above, Figure 7 (at 702) shows the determination of the restricted set to be monitored based on a specific rule, and Figure 9 (at 903, 905) includes an example of the claimed invention where the ID is an input to that rule. *Id.* at Figs. 7 and 9. Like the terms

1 above, Huawei's construction offers no clarification of the actual words in the term and merely
2 introduces unnecessary complication.

3 Huawei's construction fails as counter to the claims and the specification. Whereas Huawei's
4 proposed construction would have the UE monitoring "all available control channels transmittable by
5 a base station," the claim language is clear that the "set" is necessarily less than all transmittable
6 control channels given that the set is determined "*based on an Identifier (ID)*." See *IGT v. Bally*
7 *Gaming Int'l, Inc.*, 659 F.3d 1109, 1117 (Fed. Cir. 2011) ("Extracting a single word from a claim
8 divorced from the surrounding limitations can lead construction astray. Claim language must be
9 construed in the claim in which it appears."). Moreover, the specification makes clear that "an aspect
10 of the present invention is to provide a method and apparatus for transmitting and receiving control
11 channels by *restricting* a set of the control channels in a Wireless communication system." "That is,
12 the present invention presents a scheme for reducing a procedure that a [UE] should perform, by
13 restricting the number of control channels that the [UE] should receive and decode." See *ERBE*
14 *Elektromedizin GmbH v. Int'l Trade Comm'n*, 566 F.3d 1028, 1034 (Fed. Cir. 2009) ("We generally
15 do not construe claim language to be inconsistent with the clear language of the specification.");
16 *Merck & Co. v. Teva Pharm. USA, Inc.*, 347 F.3d 1367, 1371 (Fed. Cir. 2003) ("Thus claims must be
17 construed so as to be consistent with the specification, of which they are a part."). In effect, Huawei
18 would read out any restriction.

19 While Huawei's proposed construction is drawn from language appearing in the specification,
20 it misreads that text and the corresponding figures. As stated in the specification, "[t]he present
21 invention *restricts a set of control channels being monitored by a [UE] among all available control*
22 *channels transmittable by a base station* in delivering control information for data transmission and
23 reception to the [UE] in a wireless communication system." *Id.* at 4:47-51 (emphasis added). Huawei
24 incorrectly interprets this passage as defining the "set of control channel candidates" as all available
25 control channels transmittable by the base station rather than the restricted set to be monitored among
26 that larger universe. Similarly, Huawei looks to Figures 5A and 5B, and the accompanying text,
27 apparently in an effort to equate the "Control Channel Candidate Set 1 (502)" and "Control Channel
28 Candidate Set 2 (512)" with the claim term as used in claim 9. Huawei's reading, however, is directly

1 at odds with the specification and the claims.

2 As an initial matter, Huawei's citations refute its own construction. The "set of control
3 channel candidates" is a restricted set that is "*among* all available control channels transmittable by a
4 base station" rather than all available control channels. Similar language is found throughout the
5 specification confirming the same. *See, e.g., id.* at 5:62-6:1. Figures 5A and 5B do not help Huawei's
6 position either. While those figures use similar phrasing to that in the claim term, Huawei's
7 interpretation is foreclosed by both the plain language of the claims and the specification. As set forth
8 in claim 9, "a set of control channel candidates" is determined "based on an IDentifier (ID) of the
9 [UE]." *Id.* at 13:47-51. Huawei's construction of "all available control channels transmittable by a
10 base station" would contradict the remainder of the claim term as the set would not be determined
11 "based on an IDentifier (ID) of the [UE]." Moreover, the specification makes clear that the use of an
12 IDentifier (ID) of the UE is part of creating the restricted set of control channel candidates, not all
13 transmittable candidates. As shown in Fig. 7, step 702 "Establish[es] PDCCH That Terminal
14 Monitors According To Specific Rule." *Id.* at Fig. 7. And the accompanying disclosure in the
15 specification states that "[i]n establishing the monitoring set, the [UE] may use at least...a terminal
16 ID." *Id.* at 7:38-42. Similarly, Fig. 9 at 903 and 905, expressly shows the Monitoring Set Establisher
17 taking as an input the IDentifier (ID) of the UE. *Id.* at Fig. 9. Thus, "a set of control channel
18 candidates" based on an IDentifier (ID) of the UE cannot be the sets shown at 502 or 512 of Figs. 5A
19 and 5B, respectively, and it cannot be "all available control channels transmittable by a base station."

20 Moreover, the upshot of Huawei's construction runs counter to every disclosed embodiment in
21 the specification. *See, e.g., id.* at 8:58-62. In each of the seven disclosed embodiments, the UE is
22 described as monitoring a set of control channels candidates smaller than all control channel
23 candidates transmittable by the base station. *Id.* at 8:65-12:61. And each time an ID is expressly
24 referenced in an embodiment, the ID is used in determining that restricted set. *See, e.g., id.* at 9:57-
25 63. Huawei's construction would inappropriately both remove the concept of restricting those control
26 channel candidates monitored by the UE and change the disclosed use of the ID. Neither is
27 appropriate and each renders Huawei's construction incorrect.

28 In fact, Huawei appears to recognize that its proposed construction is at odds with and

1 unsupported by the specification. Huawei itself claims in its invalidity contentions that “the
 2 specification does not contain written description support sufficient to support an interpretation of this
 3 claim element to cover monitoring/decoding all such of control channel candidates.” Ex. 11,
 4 Huawei’s Invalidity Contentions at 68-69. Huawei’s construction is a transparent attempt to
 5 manufacture an invalidity position through the claim construction process and it should be rejected.
 6 *See, e.g., Ruckus Wireless, Inc. v. Innovative Wireless Sols., LLC*, 824 F.3d 999, 1004 (Fed. Cir. 2016)
 7 (invoking the canon of construing a claim to preserve its validity to affirm a claim construction
 8 because construing the term otherwise would likely render claims invalid for lack of written
 9 description); *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577 (Fed. Cir. 1984)
 10 (“[C]laims should be so construed, if possible, as to sustain their validity.”).

11 **VII. U.S. PATENT NO. 8,457,588**

12 **A. Overview of the ’588 Patent**

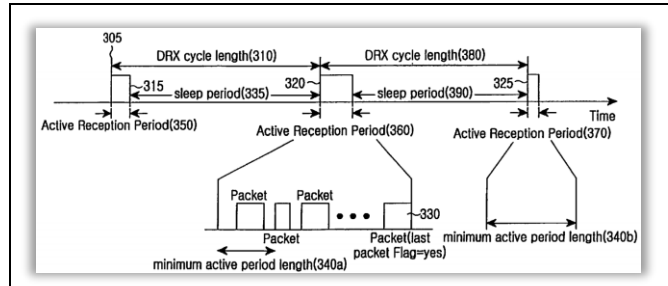
13 In UMTS systems (commonly referred to as “3G”), UEs used a power saving technique called
 14 “discontinuous reception,” or “DRX” operation. Ex. 5, ’588 Patent at 2:23-28. During DRX
 15 operation, the UE alternated between periods where the UE’s receiver was “on” (the “active period”),
 16 and periods where the UE’s receiver was “off” (the “sleep period”). *Id.* at 2:31-40.³ To ensure that
 17 the UE would not miss data, it would “wake[] up at a predetermined time, monitor[] a predetermined
 18 channel for a predetermined time period [*i.e.*, the active period], and then enter[] again into a sleep
 19 mode.” *Id.* at 2:23-25. In the UMTS system, the predetermined active period length was preset to 10
 20 ms. *Id.* at 2:55-57.

21 The ’588 inventors realized that “waking up” and monitoring for a preset amount of time
 22 would not work for LTE. *Id.* at 2:64-67. In LTE, packets of data are shared between the UE and
 23 Node B as part of a set of operations, called a “service.” *Id.* at 5:21-26; *see id.* at 3:1-6. These
 24 different services require a variable (and “unpredictable”) amount of data to be shared between the
 25 Node B and UE during a given DRX cycle. *Id.* at 5:37-43. Thus, a UE could still be in the process of

26
 27 ³ One set of an alternating active period and sleep period is referred to as a “DRX cycle,” and the
 28 combined length of a set of such alternating periods is referred to as a “DRX cycle length.” *See*
generally id. at 2:31-48, 5:44-54; Figs. 2, 3.

receiving packets of data from the Node B as part of a service, but the predetermined active time period could expire.

To solve this problem, the '588 inventors realized that the UEs should adjust the "active reception period" length, when needed (as illustrated below) to ensure efficient DRX operation.



Id. at Fig. 3; *see also id.* at 1:23-25, 6:40-47. Once the UE (and its receiver) "wake up" (*i.e.*, are turned on) during a given DRX cycle, they remain on for at least a minimum active period. If no data is received by the UE during that period, then the UE enters sleep mode after the expiration of the minimum active period. However, if there is still "data to receive, the UE maintains the active period until receiving the data completely and then enters into the sleep mode." *Id.* at 5:50-54.

The '588 patent discloses a several methods to control how long to extend the active period to make sure all the necessary data is received. *See id.* at 5:59-6:3; 6:40-45. For example, in the embodiment of Fig. 6 ("Embodiment 3"), the UE controls the length of the active time period. In this embodiment, "[w]hen the active period starts, the UE activates a ... timer T(MINIMUM_ACTIVE)," which is set to the "minimum active period length" (as reflected in step 615). *Id.* at 8:18-24.⁴ If no packets are received while the T(MINIMUM_ACTIVE) timer is running, after this timer expires "the UE is placed in the sleep mode until the next active period starts" (as shown by the "NO" option in step 620). *Id.* at 8:25-30.

However, if there is a packet of data to receive, then the UE starts a second timer, called the "T(activeperiod end)" timer (step 627). *Id.* at 8:31-41. If, for example, only a single packet is received, and the T(activeperiod end) timer expires, then the UE will transition from the active period

⁴ At this time, the UE also starts another timer called the "T(DRX_CYCLE_LENGTH)" timer, which sets the overall length of a given DRX cycle. When this timer expires, the sleep period of the current DRX cycle ends and the active period of a next DRX cycle begins. *Id.* at 8:18-24.

1 to the sleep period (YES option from step 630). *Id.* at 37-39; 49-53. However, if an additional packet
 2 is received, then the UE will restart the T(activeperiod end) timer (NO option from step 630 back to
 3 steps 625, 627).⁵ *Id.* at 8:35-47. In this way, the active period continues until a final packet is
 4 received; after the T(activeperiod end) timer expires, the UE can transition to the sleep period. *Id.* at
 5 8:49-53.

6 **B. “Controlling an Active Time Period During a [DRX] Operation”**

Samsung’s Construction	Huawei’s Construction
No construction necessary.	“Indefinite. Alternatively: monitoring control data on a shared control channel during a DRX operation only between the start of a first timer and the expiration of a second timer.”

11 The term “controlling an active time period during a Discontinuous Reception (DRX)
 12 operation” appears only in the preambles of claims 1 and 7; claim 7 is reproduced below:

- 13 7. An apparatus for **controlling an active time period during a Discontinuous**
 14 **Reception (DRX) operation** in a User Equipment (UE) in a mobile
 15 communication system, comprising:
 16 a DRX controller

17 for starting, in the UE, a first timer to monitor control data via a shared
 18 control channel, the control data being associated with user data to be
 19 transmitted, and

20 for starting, in the UE, a second timer, when control data indicating a new
 21 transmission of associated user data is received via the shared control channel
 22 while the first timer is running, or

23 for restarting, in the UE, the second timer, when the control data indicating a
 24 new transmission of associated user data is received via the shared control
 25 channel while the second timer is running.

26 ’588 patent at claim 7 (emphasis added).

27 Although Huawei apparently contends this claim term is indefinite⁶, Huawei’s indefiniteness
 28

24 ⁵ The ’588 patent discloses several options in connection with restarting the T(activeperiod end) timer.
 25 *Id.* at 8:42-9:12. In “method 1,” the timer restarts only when the next received packet is a new packet.
 26 After the timer expires, the UE completes the receiving processing of packets that need to be
 27 retransmitted by the base station (“HARQ packets”) before entering sleep mode (step 640). *Id.* at
 28 8:44-45, 57-61. In “method 2,” the timer restarts regardless of whether the received packet is a new
 packet or a retransmitted packet.

27 ⁶ Indefiniteness must be proven by clear and convincing evidence. *Sonix Technology Co., Ltd. v.*
 28 *Publications International, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017). The relevant inquiry is
 (footnote continued)

argument is undercut by its own submission of an alternative construction, which strongly suggests one of ordinary skill in the art would understand the scope of the invention. Moreover, as set forth below, claims 1 and 7 –including the phrase “controlling an active time period ...”– inform those skilled in the art about the scope of the invention with reasonable certainty: the phrases “controlling” and “active time period” are used in their ordinary and commonly understood sense, and the specification provides the details of how the steps set forth in the body of the claim are used to control the active time period. *See Cox Comm’ns, Inc. v. Sprint Comm’n Co. LP*, 838 F.3d 1224, 1231-32 (Fed. Cir. 2016) (finding claim with “processing system” limitation definite where the specification disclosed an embodiment of the claimed limitation and “provide[d] details about how it functions to” perform the claimed method steps); ‘588 Patent, 5:44-6:47, 7:66-9:1.⁷

Turning to Huawei’s alternative construction, as a preliminary matter the “general rule is that preamble language is not limiting.” *Fujifilm Corp. v. Motorola Mobility LLC*, Case No. 12–cv–0358, 2015 WL 757575 at *13 (Fed. Cir. Feb. 20, 2015), *citing Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1347–48 (Fed. Cir. 2012). While a preamble may be limiting if required to breathe “life and meaning” into the claim, courts have consistently found a preamble non-limiting where it “simply states the intended use or purpose of the invention” or “describes a structurally complete invention such that deletion of the preamble phrase does not affect the structure or steps of the claimed invention.” *Fujifilm*, 2015 WL 757575 at *13; *see Howmedica Osteonics Corp. v. Zimmer, Inc.*, 640 Fed. Appx. 951, 956 (Fed. Cir. 2016).

Here, the preamble merely states the intended purpose or use of the invention, *i.e.*, that the claimed apparatus and methods operate in the context of “controlling an active time period” during DRX operation. Thus, the preambles of claims 1 and 7 simply provide a “general description of the context in which the ‘improvement’ recited in the body of the claim is situated.” *See Textron Innovations Inc. v. American Eurocopter Corp.*, 498 Fed. Appx. 23, 26-27 (Fed. Cir. 2012) (finding

whether “a patent’s claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty.” *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120, 2129 (2014).

⁷ Samsung intends to address the substance of any further arguments pertaining to indefiniteness that Huawei may raise in Samsung’s Reply Brief.

1 the term “replacement” in the preamble phrase “replacement helicopter landing gear assembly” as
 2 constituting the “principal intended use of the invention,” and thus non-limiting). Moreover, the body
 3 of each claim recites a complete invention. For example, considering claim 7 above, deletion of the
 4 preamble language has no affect on the claimed structure, as the claim still recites “a DRX controller
 5 for starting, in the UE, a first timer ... starting, in the UE, a second timer, ... or for restarting, in the
 6 UE, the second timer.” Accordingly, the preambles of claims 1 and 7 are non-limiting. *See*
 7 *Howmedica*, 640 Fed. Appx. at 956.

8 Even assuming the preambles were limiting, no construction is necessary, as their meaning is
 9 clear from the language of the claim and the related disclosure in the specification. The term
 10 “controlling” is used in its ordinary English sense, and readily understandable to one of ordinary skill
 11 in the art and laypersons alike; as described in the specification, the active time period is simply
 12 “controlled” by the UE in order to provide for a variable active period length. *See* ’588 patent at 1:23-
 13 25, 4:44-45, 6:45-47. Similarly, consistent with its use in the specification, the phrase “active time
 14 period” simply refers to the period of time that the UE is active (as opposed to being in “sleep
 15 mode”). *See, e.g., id.* at 2:35-37, 5:44-54, 5:66-6:2, 6:9-17.

16 Huawei’s proposed alternative construction takes this straightforward language, and
 17 incorporates multiple additional limitations inconsistent with the language of the claims and the ’588
 18 patent disclosure. An illustration of how Huawei seeks to rewrite the preamble is instructive (added
 19 language in bold): “~~controlling an active time period~~ **monitoring control data on a shared control**
 20 **channel** during a Discontinuous Reception (DRX) operation **only between the start of a first timer**
 21 **and the expiration of a second timer.**” Viewed accordingly, Huawei’s construction on its face
 22 suffers multiple deficiencies.

23 First, Huawei replaces the term “controlling” with “monitoring.” However, claims 1 and 7 (as
 24 well as dependent claims 4 and 10) distinctly use the term “monitoring” in the body of the claim; had
 25 the Applicants for the ’558 Patent intended to limit the preamble to “monitoring,” they would surely
 26 have used that term. *See CAE Screenplates, Inc. v. Heinrich Fiedler GmbH Co. KG*, 224 F.3d 1308,
 27 1317 (Fed. Cir. 2000) (“In the absence of any evidence to the contrary, we must presume that the use
 28 of these different terms in the claims connotes different meanings.”) Next, Huawei reads in a

reference to monitoring “control data” and a “shared control channel.” However, this introduces unnecessary complexity to the preamble, which does not mention either control data or a control channel; instead, Huawei seeks to read in limitations set forth in the body of the claim (*e.g.*, relating to the operation of the first and second timer) into the preamble.

Huawei further adds the requirement that the claimed “monitoring” it has now inserted into the preamble can “only” take place “between the start of a first timer and the expiration of a second timer.” Again, Huawei is adding unnecessary complexity to the preamble, which does not mention timers at all. Regardless, there is no intrinsic support for the assertion that the “only” monitoring that can take place must be when these two timers are running.⁸ Indeed, Huawei’s proposed construction would read out a preferred embodiment: as set forth in connection with “Method 1” of “Embodiment 4,” even after the second timer expires, the UE continues to process HARQ packets that are retransmitted, which requires the UE to monitor a shared control channel. *See* ’588 patent at 7:28-38, 8:49-61, 2:22-38.⁹ Thus, Huawei’s additional limitations should be rejected. *See SanDisk. Corp. v. Memorex Products, Inc.*, 415 F.3d 1278, 1285 (Fed. Cir. 2005).

Finally, Huawei apparently is relying on arguments and amendments during prosecution of the parent application to which the ’588 patent claims priority. However, to the extent such arguments are relevant, they in fact undercut Huawei’s proposed construction. First, in the 5/3/12 Response to Office Action, the Applicants amended the preambles of then pending claims 23 and 29 as follows (added language underlined): “A method for controlling an active timer period during performing a Discontinuous Reception (DRX) operation.” Ex. 12, p. 2. As the Applicant expressly stated, this language was simply added to “clarif[y] that the controlling of the active time period is part of the DRX operation,” *i.e.*, the added preamble language merely provided the context of the invention. *Id.*

⁸ Huawei’s construction also improperly renders dependent claims 4 and 10 superfluous. *See Stumbo v. Eastman Outdoors, Inc.*, 508 F.3d 1358, 1362 (Fed. Cir. 2007). For example, claim 10 reads: “The apparatus of claim 7, wherein the DRX controller monitors the control data via the shared control channel while at least one of the first timer and the second timer is running.” If the preambles of claims 1 and 7 were already limited to only monitoring “between the start of a first timer and the expiration of a second timer,” as Huawei proposed, then claims 4 and 10 would be of the same scope as their respective independent claims.

⁹ The HARQ retransmission process is described in more detail in connection with the ’726 patent. *See* Section IV.A., *supra*; ’726 patent at 1:66-2:12; 6:15-26; Fig. 2.

1 at p. 5. Such amendments to a preamble do not render the preamble limiting. *See Textron*, 498 Fed.
2 Appx. at 26-27 (finding the term “replacement” added to the preamble in prosecution non-limiting);
3 *Marrin v. Griffin*, 599 F.3d 1290, 1294 (Fed. Cir. 2010).

4 Second, in the 9/23/11 Response to Office Action, the Applicants stated, for example, that the
5 UE “monitors control data via a shared control channel from the time the first timer starts to the time
6 the second timer expires,” and that the “active time period *includes* a period in which at least one of
7 the first timer and the second is running.” Ex. 13 at p. 5, 7 (emphasis added). However, the preamble
8 language Huawei seeks to construe here was not even a part of the then pending claims (as this
9 language was not added until the 5/3/12 Response discussed above), and thus these statements (made
10 with respect to the “starting ...” and “restarting ...” limitations of the body of the then pending
11 claims) cannot be attributed to the preamble. Moreover, Applicants were using these statements to
12 distinguish art that “stays in sleep mode during the timer period from the timer the first timer starts to
13 the timer the second timer expires”; thus, they were not asserting that the claimed monitoring took
14 place *only* during that time period, as Huawei apparently contends, but that the monitoring must take
15 place *at least* during that time period. Ex. 13 at p. 5, 7.

16 **VIII. CONCLUSION**

17 For the foregoing reasons, Samsung respectfully requests that the Court adopt its proposed
18 constructions.

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Respectfully submitted,

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